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Presentation Abstract

Program #: 460

Presentation: Cortical Control of Arm Movements: A Dynamical Systems Perspective.

Location: Hall B1

Presentation time: Tuesday, Oct 20, 2015, 11:30 AM -12:40 PM

Speaker: ***K. V. SHENOY;**
Electric Engineer & Neurosci, Stanford Univ., Stanford, CA

Abstract: Our ability to move is central to everyday life. Investigating the neural control of movement in general, and the cortical control of volitional arm movements in particular, has been a major research focus in recent decades. Studies have involved primarily either attempts to account for single-neuron responses in terms of tuning for movement parameters or attempts to decode movement parameters from populations of tuned neurons. Even though this focus on encoding and decoding has led to many seminal advances, it has not produced an agreed-upon conceptual framework. Interest in understanding the underlying neural dynamics has recently increased, leading to questions such as how does the current population response determine the future population response, and to what purpose? We review how a dynamical systems perspective may help us understand why neural activity evolves the way it does, how neural activity relates to movement parameters, and how a unified conceptual framework may result.

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